VALLEY OF THE DRUMS

Site: A. L. Taylor
Break: 2-2
Other:

JACKIE SWIGART
Secretary

JOHN Y. BROWN, JR.
Governor

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR POLLUTION CONTROL
WEST FRANKFORT OFFICE COMPLEX
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FRANKFORT, KENTUCKY 40601

RECEIVED
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DIV. OF HAZARDOUS MATERIAL AND WASTE MANAGEMENT

MEMORANDUM

TO: Roger Blair
Division of Hazardous Materials

Warren Peace
Division of Water Quality

FROM: Diana Andrews DA
Division of Air Pollution Control

DATE: May 30, 1980

SUBJECT: Laboratory Analysis

Enclosed are the results of the analysis of water samples collected at the A. L. Taylor site (Valley of the Drums). Four samples labeled Pond I, Pond II, Pond III and Continuation of Pond III were submitted to the Laboratory. Two samples were completed prior to the resignation of the GC/MS chemist.

It is felt that some degree of discretion should be utilized in the interpretation of the results since a considerable amount of time elapsed between sample collection and completion of analysis. This also was the first attempt at using the "Priority Pollutant Protocol". If more definitive results are desired, further sampling would be indicated.

DA/jh

Enclosures

Analysis of Water Samples Collected at the A.L. Taylor Site, (Valley of the Drums)

Procedure

Sample Preparation

The liquid level in the sample container was marked, (to allow later measurement of sample volume), and the entire contents transferred to a 2-liter separatory funnel. The pH of the sample, (as measured by pHydrion paper), was adjusted to greater than 11 by addition of 6 N NaOH. The sample was serially extracted with 3 60-ml volumes of methylene chloride, (the first volume being used to rinse the sample container as well); the extracts combined, and labelled as base/neutral fraction.

The sample was then adjusted to a pH of 2 by addition of 6 N H_2SO_4 and serially extracted with 3 60-ml volumes of methylene chloride. The extracts were combined and labelled as acid fraction.

The volumes of the respective extracts were reduced to 0.5 ml in a Kuderna-Danish evaporative concentrator, quantitatively transferred to 1.0 ml volumetric flasks and diluted to volume with methylene chloride. The concentrated extracts were then transferred to 2 ml septum vials with Teflon-lined septa, appropriately labelled, and refrigerated until analyzed.

Analysis

20 µg of the internal standard, D10-anthracene, was added to the concentrated extract just prior to analysis, (such that a 2 µl injection of the extract would contain 40 ng of the internal standard.

DATA & CALCULATIONS

SAMPLE: I POND

BASE / NEUTRAL EXTRACT

No.	Scan	Compound, (Purity/Fit)	Area	Amount, ng
1	34	CYCLOBUTENE, 2-PROPENYLIDENE (859/920)	119308	3.9
2	163	PROPANE, 2-METHOXY-2-METHYL (555/935)	277506	9.0
3	178	BENZENE, 1,4-DICHLORO- (909/992)	93314	3.0
4	211	HYDROXYLAMINE, O-DECYL- (855/972)	193316	6.3
5	225	CYCLOHEXANONE, 3,3,5-TRIMETHYL- (802/872)	83944	2.7
6	234	UNKNOWN	240280	7.8
7	251	HEXADECANE (882/961)	244384	7.9
8	287	UNDECANE (854/944)	1904010	61.8
9	288	1-HEXADECENE (834/978)	1926750	62.5
10	303	UNDECANE (761/893)	42016	1.4
11	311	UNKNOWN	9432	0.3
12	320	OCTADECANE (887/904)	736096	23.9
13	336	OCTADECANE (716/771)*	269696	8.8
14	339	UNKNOWN	60848	2.0
15	354	1-HEXADECENE (882/996)	2868790	93.1
16	362	UNDECANE, 2,5-DIMETHYL- (528/837)	380733	12.4
17	377	HEPTADECANE, TETRAMETHYL- (757/956)	1437430	46.6
18	381	NONANE, 2,5-DIMETHYL- (726/851)	150392	4.9
19	384	UNKNOWN	516485	16.8
20	394	EICOSANE (736/882)	298240	9.7
21	410	OCTADECANE (688/852)	1071230	34.8
22	412	1-TETRADECENE (716/952)	1110970	36.1
23	421	UNKNOWN	127467	4.1
24	428	UNDECANE, 2,5-DIMETHYL (557/922)	143289	4.6
25	437	1-EICOSANOL (600/873)	334690	10.9
26	443	PENTACOSANE (787/929)	344768	11.2

27	468	UNKNOWN	156312	5.1
28	464	PENTACOSANE (725/885)	233344	7.6
29	480	D10- ANTHRACENE (INTERNAL STD)	1232490	40.0
30	488	1-OCTADECANOL (681/823)	212706	6.9
31	498	OCTACOSANE (744/913)	345600	11.2
32	510	1,2-BENZENECARBOXYLIC ACID, DIBUTYL ESTER (750/902)	385937	12.5
33	523	UNKNOWN	2339640	76.0
34	535	ISOHEPTADECANOL* (501/689)	39872	1.3
35	543	DOCOSANE (727/896)	178880	5.8
36	558	PENTACOSANE (689/880)	108928	3.5
37	587	OCTANE, 1,1'-OXYBIS- (566/911)	5228150	170.0
38	631	HEPTANE, 3-METHYLENE- (619/856)	1422320	46.2

SA 1 III FIFL

ACID FRACTION

SCAN	COMPOUND	AREA	AMOUNT, NG
237	1-TETRADECENE	56723	33
289	1-DECENE	21062	12
304	UNKNOWN	16199	9
314	HEXANE, 3,3-DIMETHYL	29387	17
410	1,2-BENZENECARBOXYLIC ACID, DIETHYL ESTER	41803	24
510	D10-ANTHRACENE	68352	